



MORE LIGHT

Industrial Sensors

Enabling efficient automation and precise process control with easy-to-integrate LiDAR sensors.

Optical technologies are not only the very basis of our business, they are also a key factor for the success of a huge variety of others.

For 40 years Jenoptik has been engaged in the LiDAR (light detection and ranging) business and providing highly efficient and precise industrial solutions. Our eye-safe laser rangefinder modules can be used not only to measure distances or provide positional location, but also to determine fill levels without physically touching the object. The fields of application are numerous.

Our LiDAR sensors are especially designed to provide precise and fast data over long distances of up to several

hundred meters. At cycle rates of up to several thousand measurements per second and with accuracies of up to a few millimeters, we offer perfect sensor solutions for industry 4.0 demands – now without a casing and therefore suitable for almost any design.

The LDS30, LDM52, and the brand new LDM72 OEM modules derived from established and proven sensor products and are now available for you to integrate into your own products. The areas of application are as vast as our products are precise: Eye-safe laser rangefinders are crucial for autonomous ground vehicles as well as for the automation and digitization of factories. Find out more about our latest LiDAR module solutions for your industry and let us invite you to take a closer look.

Accuracy is the key – to our success and yours.
Equip your industry 4.0 products with Jenoptik performance and experience.

Versatile solutions for any business:

- **Wide portfolio:** a broad selection of LiDAR sensors for measuring any distance on any target
- **Easy to integrate:** compact laser class 1 and 2 sensor modules for easy integration into sensor solutions for a maximum range of application scenarios
- **High performance:** long measurement ranges and high measurement accuracy on natural surfaces
- **Fast:** enabling distance tracking, speed measurement, and scanning systems
- **Low life cycle costs:** highly efficient, enduring, non-wearing measurement technology

Manifold fields of application:

- **Automation and Industry 4.0:** process control, for example position and level measurement
- **Industrial metrology:** noncontact distance, length, and height measurement
- **Transport and logistics:** position, height, and distance measurement, obstacle detection, autonomous ground vehicle control
- **Steel works and rolling mills:** length, position, and thickness measurement of slabs and coils
- **Shipping and navigation:** docking and loading assistance
- **Scanning systems:** 1D, 2D, and 3D distance measurement solutions



LDM52

Precise measuring in bright sunlight or stray light levels: the laser rangefinder modules of the LDM52 series.

With the LDM52 OEM series, Jenoptik provides compact and eye-safe LiDAR sensor solutions for precise measurement in diverse ambient light conditions.

- Extremely compact sensor module with pulse mixing technology, digital and analog output
- Precise distance measurement from 15 centimeters to 100 meters on natural surfaces
- Output frequency up to 100 hertz



LDM72

Specialized in the quick and accurate measurement of moving objects: the LiDAR sensor modules of the LDM72 series.

The eye-safe laser rangefinder modules of the LDM72 OEM series are characterized by an above-average measurement performance regarding speed, range, and accuracy. It is the perfect tool for moving objects.

- Extremely fast and compact sensor module
- Measuring range up to 125 meters on natural surfaces
- Output frequency up to 40 kilohertz



LDS30 OEM

Fast noncontact measurement on natural surfaces: the LDS30 OEM laser rangefinder series.

Specifically designed for scanning and proximity sensing applications, the eye-safe LDS30 OEM LiDAR sensor series scores with high frequencies on low-reflectance surfaces.

- Robust and proven time-of-flight measurement method allows reliable and fast measurement on natural surfaces
- Measuring range up to 250 meters
- Output frequency up to 30 kilohertz

Transparency at a glance.
These facts travel at the speed of light.

Technical specifications	LDM52 series	LDM72 series	LDS30 OEM series
Measurement capabilities			
Total range	0.1 m ... 200 m	0.2 m ... 270 m	0.2 m ... 250 m
Range on target board ¹	0.1 m ... 100 m	0.5 m ... 270 m	0.2 m ... 250 m
Range on natural surface ²	80% refl.: 0.15 m ... 100 m 6% refl.: 0.15 m ... 85 m	80% refl.: 0.2 m ... 125 m 10% refl.: 0.2 m ... 70 m	10% refl.: 0.2 m ... 30 m
Accuracy (1 σ)	$\leq \pm 3.9$ mm	± 60 mm (single measurement) ³	± 50 mm (single measurement)
Repeatability (1 σ)	± 0.6 mm	± 25 mm (single measurement) ⁴	± 20 mm (single measurement)
Measured value resolution	0.1 mm	1 mm	1 cm
Measurement frequency, max.	100 Hz	40 kHz	30 kHz
Laser			
Wavelength	655 nm	905 nm	905 nm
Divergence	<0.2 mrad	2 mrad \times 0.4 mrad	3 mrad
Classification	Laser Class 2, EN 60825-1:2014	Laser Class 1, EN 60825-1:2014	Laser Class 1, EN 60825-1:2014
Connectivity and I/O options			
Serial interface	UART, LVCMOS 33	UART, LVCMOS 33	RS422
Switching output	3x, level 0V ... 3.3V DC		2x, level 0V ... 3.3V DC
Analog output	Yes	n/a	n/a
Trigger	1x IN/OUT, 0V ... 3.3V DC	n/a	n/a
Connectors	16-pin connector (male), FH12-10S-0.5SH(55), (Samtec)	DF12(3.0)-30DS-0.5V(86) (Hirose)	MX 503047-1410 (Molex)
Power			
Power supply	4.5V DC ... 5.5V DC	4.5V DC ... 5.5V DC, <0.3A, peak 1A / 500 μ s	6.5V DC ... 7.0V DC
Power consumption, max.	<2.5 W	<2W	<2W
Ambient conditions			
Operating temperature	-10°C ... +60°C	-10°C ... +60°C	-20°C ... +50°C
Storage temperature	-40°C ... +70°C	-40°C ... +70°C	
Humidity	15% ... 60%, noncondensing	15% ... 90%, noncondensing	15% ... 90%, noncondensing
Physical			
Dimensions (L \times W \times H)	50 mm \times 35 mm \times 27 mm	51 mm \times 46 mm \times 25 mm	40 mm \times 40 mm \times 29 mm
Weight	Approx. 70 g	Approx. 60 g	Approx. 50 g

¹ Measurement range for special targets, e.g. Scotchlite Cube.

² Measurement range for naturally diffuse reflecting surfaces, depending on target reflectivity, stray light, and environmental conditions.

³ Accuracy in the range ≤ 1 m and in the range ≥ 70 m is ± 100 mm.

⁴ Repeatability in the range ≤ 1 m and in the range ≥ 70 m is ± 50 mm.

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